



STIC Search Report

EIC 2100

STIC Database Tracking Number: 174817

TO: Mark Francis
Location: RND 5C11
Art Unit: 2193
Wednesday, December 21, 2005

Case Serial Number: 09/992125

From: Emory Damron
Location: EIC 2100
RND 4B19
Phone: 571-272-3520

Emory.Damron@uspto.gov

Search Notes

Dear Mark,

Please find below your fast and focused results.

References of potential pertinence have been tagged, but please review all the packets in case you like something I didn't.

Of those references which have been tagged, please note any manual highlighting which I've done within the document.

In addition to searching on Dialog, I also searched EPO/JPO/Derwent, Google and IEEEExplore.

There may be a few decent references contained herein, but I'll let you determine how useful they may be to you.

Please contact me if I can refocus or expand any aspect of this case, and please take a moment to provide any feedback (on the form provided) so EIC 2100 may better serve your needs. Good Luck!

Sincerely,

Emory Damron

Technical Information Specialist

EIC 2100, US Patent & Trademark Office

Phone: (571) 272-3520

Emory.damron@uspto.gov





STIC EIC 2100 Search Request Form

174817

(89)

Today's Date:

12-21-05

What date would you like to use to limit the search?

Priority Date: 11/13/01

Other:

Name Mark P. FrancisAU 2193 Examiner # 80759Room # 5C11 Phone 27956Serial # 09/992125

Format for Search Results (Circle One):

PAPER

DISK

EMAIL

Where have you searched so far?

USP

DWPI

EPOJPO

ACM

IBM TDBIEEE

INSPEC

SPI

Other

Is this a "Fast & Focused" Search Request? (Circle One) YES NO

A "Fast & Focused" Search is completed in 2-3 hours (maximum). The search must be on a very specific topic and meet certain criteria. The criteria are posted in EIC2100 and on the EIC2100 NPL Web Page at <http://ptoweb/patents/stic/stic-tc2100.htm>.

What is the topic, novelty, motivation, utility, or other specific details defining the desired focus of this search? Please include the concepts, synonyms, keywords, acronyms, definitions, strategies, and anything else that helps to describe the topic. Please attach a copy of the abstract, background, brief summary, pertinent claims and any citations of relevant art you have found.

remote software updating

mapping changes from read-only to
read-write

Claim 1

P6PUB

2003/

0093 782

STIC Searcher Emily DannerPhone 2-3520Date picked up 12/21/05Date Completed 12/21/05

xcopy



STIC Search Results Feedback Form

EIC 2100

Questions about the scope or the results of the search? Contact *the EIC searcher or contact:*

Anne Hendrickson, EIC 2100 Team Leader
272-3490, RND 4B28

Voluntary Results Feedback Form

➤ I am an examiner in Workgroup: 2193 Example: 2133

➤ Relevant prior art **found**, search results used as follows:

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

➤ Relevant prior art **not found**:

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to STIC/EIC2100 RND, 4B28



Set	Items	Description
S1	228362	REMOTE? OR (NON OR "NOT") () PHYSICAL? () PRESENT OR (NON OR "NOT") () (PRESENT ON(2W) PREMISE) OR OFFSITE? OR OFF () SITE
S2	173160	NONLOCAL? OR "NOT" () LOCAL? OR WIRELESS? OR WIRE () LESS? OR - CELLULAR? OR BLACKBERRY? OR BLUETOOTH?
S3	977604	SOFTWARE? OR APPLICATION? OR SOFT () WARE? OR APPLET? ? OR J-AVA
S4	72143	SUBROUTIN? OR SUBPROGRAM? OR COMPUTER? (2N) (CODE? OR UTILIT? OR SCRIPT? OR PROGRAM?)
S5	3498774	UPDAT? OR CHANGE? OR CHANGING? OR ALTER? OR MODIF? OR TRANSFORM? OR CONVERT? OR CONVERSION?
S6	582697	UPGRAD? OR REPLAC? OR SUBSTITUT? OR UP () (DATE? OR DATING? - OR GRADE? OR GRADING?)
S7	79690	EDIT? OR (WRITE? OR WRITING? OR WRITTEN OR COPY? OR COPIE? -) () OVER OR REFRESH?
S8	2463171	IMPLANT? OR INSERT? OR IMPORT? OR EMBED? OR TRANSPLANT? OR TRANSFER? OR RELOCAT?
S9	34402	MAPPING? OR REMAP? OR MAPPED OR MAPS
S10	4805422	PARTITION? OR PART? ? OR PARTIAL? OR SEGMENT? OR DIVISION?
S11	752749	PARCEL? OR PIECE? OR CHUNK? OR FRACTION? OR SLICE?
S12	3480245	SECTION? OR SECTOR? OR PORTION? OR APPORTION?
S13	20494	READ () ONLY? OR READONLY?
S14	99067	ROM? ? OR CDROM? OR STATIC? () ROM? ? OR STATICROM? OR FLASH- () MEMOR?
S15	19691	READ () WRITE? OR READWRITE?
S16	28981	READ () ERAS? OR READ () UPDAT? OR EPROM? OR EEPROM? OR PROM? ? OR PROGRAM? () ROM? ? OR REPROGRAM? () ROM?
S17	1270169	IC=G06F?
S18	967055	MC=T01?
S19	2101	S1:S2(10N) S5:S9(10N) S3:S4
S20	1501	S19 AND S17:S18
S21	2101	S19:S20
S22	9	S21 AND S13:S14 AND S15:S16
S23	1	S22 AND S10:S12
S24	9	S22:S23
S25	832282	PR=2002:2005
S26	8	S24 NOT S25
S27	8	IDPAT (sorted in duplicate/non-duplicate order)

File 347:JAPIO Nov 1976-2005/Jul(Updated 051102)
(c) 2005 JPO & JAPIO

File 350:Derwent WPIX 1963-2005/UD,UM &UP=200581
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27/3,K/4 (Item 4 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2005 Thomson Derwent. All rts. reserv.

014171804 **Image available**
WPI Acc No: 2001-656032/200175
XRPX Acc No: N01-488990

**Telephone device having software upgrading function - includes a
telephone machine with a card insertion slot and a flash card connected
with the telephone machine**

Patent Assignee: INVENTEC CORP (INVE-N)
Inventor: LAI J
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
TW 436705	A	20010528	TW 98114396	A	19980831	200175 B

Priority Applications (No Type Date): TW 98114396 A 19980831

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
TW 436705	A		G06F-013/38	

Abstract (Basic):

... The present invention relates to a telephone device having the
software upgrading function. It includes a telephone machine with a
card **insertion** slot and a flash card connected with the telephone
machine to allow users to download those new telephone **upgrading**
software programs and various programs and data in the **remote** server
several times through a network connection to the flash card for
multiple **read / write** without having to take the telephone device
apart to replace the **read only** memory (**ROM**) of the erasable and
programmable **read only** memory (**EPROM**). Then, in order to
accomplish software upgrading, the new telephone upgrading software
programs and various...

...to allow the telephone device to have functions different from its
default functions. Since multiple **read / write** can be carried out on
the flash card and no replacement of **ROM** or **EPROM** is required, not
only costs can be reduced but also programs or data can be...

International Patent Class (Main): **G06F-013/38**

Manual Codes (EPI/S-X): **T01-H07**

Telephone device having software upgrading function

Patent number: TW436705B
Publication date: 2001-05-28
Inventor: LAI JEN-SHING (TW); JANG FENG (CN); CHEN JR-GUANG (CN)
Applicant: INVENTEC CORP (TW)
Classification:
- **international:** (IPC1-7): G06F13/38
- **european:**
Application number: TW19980114396 19980831
Priority number(s): TW19980114396 19980831

Report a data error here

Abstract of **TW436705B**

The present invention relates to a telephone device having the software upgrading function. It includes a telephone machine with a card insertion slot and a flash card connected with the telephone machine to allow users to download those new telephone upgrading software programs and various programs and data in the remote server several times through a network connection to the flash card for multiple read/write without having to take the telephone device apart to replace the read only memory (ROM) of the erasable and programmable read only memory (EPROM). Then, in order to accomplish software upgrading, the new telephone upgrading software programs and various programs and data can simultaneously be stored in the flash card to allow the telephone device to have functions different from its default functions. Since multiple read/write can be carried out on the flash card and no replacement of ROM or EPROM is required, not only costs can be reduced but also programs or data can be downloaded through a network connection at any time in accordance with the actual requirement. Hence, the present invention has high instantaneity and effectiveness and allows users to decide the multi-function of the telephone device according to their personal requirements.

Data supplied from the **esp@cenet** database - Worldwide

27/3,K/5 (Item 5 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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014095029

WPI Acc No: 2001-579243/200165

Related WPI Acc No: 1999-152121; 2000-542244; 2001-014499; 2001-158027;
2001-353120; 2001-637798; 2001-656153; 2002-236846; 2002-392530;
2002-413019; 2003-745062; 2004-088287; 2004-326936; 2005-099471;
2005-550979; 2005-783566

XRFX Acc No: N01-431101

Flash memory updating system for wireless interface devices e.g.
Personal Digital Assistants, uses radio communications to host computers
executing update programs

Patent Assignee: NEC CORP (NIDE)

Inventor: BI D; WILSON J Y

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 6279153	B1	20010821	US 95543786	A	19951016	200165 B
			US 97783080	A	19970115	

Priority Applications (No Type Date): US 97783080 A 19970115; US 95543786 A
19951016

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 6279153	B1	169	G06F-009/45	CIP of application US 95543786

Flash memory updating system for wireless interface devices e.g.
Personal Digital Assistants, uses radio communications to host computers
executing update programs

Abstract (Basic):

... wireless Local Area Network (LAN). The interface device can
access the host computer which executes **Flash memory** and **EEPROM**
update programs for the interface device.

... For use in the updating of **Flash memory** and **EEPROM** of
wireless interface devices such as Personal Digital Assistants...

...The system allows access to remote stand-alone host computers for
updating the **Flash memory** **EEPROM** of wireless interface devices.

It provides access to both wired and wireless local area networks...

International Patent Class (Main): **G06F-009/45**

Manual Codes (EPI/S-X): **T01-C01C** ...

... **T01-C02B1D** ...

... **T01-C03C** ...

... **T01-F05A** ...

... **T01-H01B3** ...

... **T01-H07C3E** ...

... **T01-H07C5S** ...

... **T01-J12B1** ...

... **T01-M06A1A**



US006279153B1

(12) **United States Patent**
Bi et al.

(10) **Patent No.: US 6,279,153 B1**
(45) **Date of Patent: *Aug. 21, 2001**

(54) **MULTI-USER FLASH ROM UPDATE**

4,470,127 * 9/1984 Thompson 364/919.4

(75) Inventors: **Depeng Bi**, Mt. Prospect; **James Y. Wilson**, Crystal Lake, both of IL (US)

(List continued on next page.)

(73) Assignee: **NEC Corporation**, Tokyo (JP)

OTHER PUBLICATIONS

(*) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Norford et al., Near-Term Technology Review of Electronic Office Equipment, IEEE, p. 1355-1362, 1993.*

Barbara et al. Sleepers and Workaholics: Caching Strategies in Mobile Environments, ACM, p. 1-12, May, 1994.*

Microsoft Press, Computer Dictionary, 2nd Ed., 1994, 52.*

Que's Computer Programmer's Dictionary, (1993), 68, 69, 357.*

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **08/783,080**

(22) Filed: **Jan. 15, 1997**

Primary Examiner—Kakali Chaki

Assistant Examiner—John Q. Chavis

(74) Attorney, Agent, or Firm—Katten Muchin Zavis

Related U.S. Application Data

(63) Continuation-in-part of application No. 08/543,786, filed on Oct. 16, 1995, now abandoned.

(51) Int. Cl.⁷ **G06F 9/45**

(52) U.S. Cl. **717/11; 455/38.3**

(58) Field of Search **395/712; 717/12, 717/11**

(57) ABSTRACT

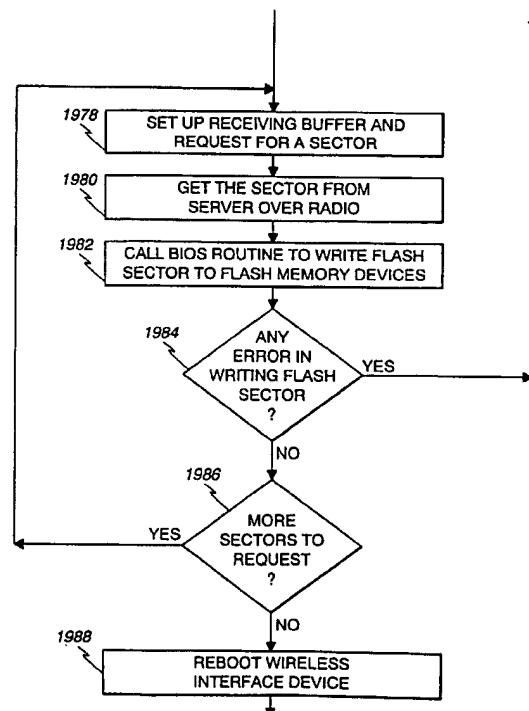
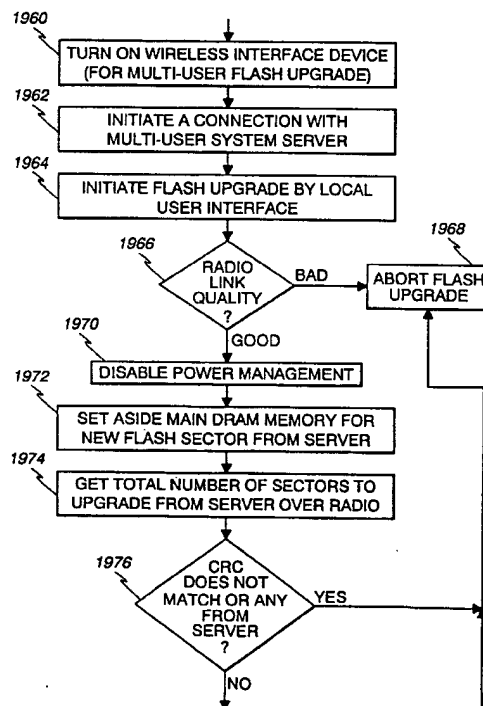
A system in which a plurality of wireless interface devices, each containing one or more flash memory devices, are interfaced to a server which may be connected in either a wireless or wired LAN by way of a radio link. The system in accordance with the present invention, enables the flash or other type of memory devices in the plurality of wireless interface devices interfaced to the server to be updated over a radio link.

(56) References Cited

U.S. PATENT DOCUMENTS

4,005,388 1/1977 Morley et al. 340/172.5

17 Claims, 126 Drawing Sheets



in step 2306 whether the data packet is a stack point. If not, the system checks whether the point was within the ink field 2142 in step 2308. If not, the ink field is disabled in step 2310, and the mouse data packets are pushed into the router stack in step 2312. After the mouse data packets are pushed into the router stack, the mouse manager is called in step 2314 to process the data packet as a mouse data packet in step 2314. Subsequently, the system returns to step 2268 for processing.

If it is determined in step 2306 that the data packet is a stack point, the system then checks in step 2316 whether the data packet was within the ink field 2142 in step 2316. If not, the point is ignored in step 2318, and the system returns to step 2268 for further data packet processing. If it is determined in step 2316 that the data packet in the stack was within the ink field 2142, the data packet is put into the transmit buffer in step 2320 for wireless transmission to the server 1708, 1710. After the data packet is placed into the transmit buffer, the point is inked on the display of the wireless interface device in step 2322.

28. Local Handwriting Recognition in a Wireless Remote Interface Tablet

As mentioned above, the wireless interface device is provided with an ink field 2142 (FIG. 96). As mentioned above, wireless interface device 100 powers up in a left button down mouse mode. A pen down event within the ink field 2142 causes the wireless interface device 100 to switch to a pen mode. As mentioned above, all pen down events are formulated into pen data packets and stored in a buffer. Initially, the system determines in step 2324 (FIG. 110) whether the wireless interface device 100 is in a handwriting recognition mode, which, as will be discussed below, may be controlled in a manner as discussed above by pen events in the ink control field running on the servers 1708, 1710. If the system is not in a handwriting recognition mode, the system calls the default pen point handler which processes pen data, as discussed above. If the system is in a handwriting recognition mode, the system calls the handwriting recognizer in step 2328, which takes the pen data and converts it to characters and passes it onto the client manager in step 2330 for transmission to the servers 1708, 1710, by way of the radio link. The character data is received by the servers 1708, 1710 in step 2334 and converted to a keyboard input in step 2336.

As indicated above, a pen events in an ink control field may be used to place the system in a handwriting recognition mode, as indicated in step 2338. This information is transmitted to the server manager in step 2340 for wireless transmission to the wireless interface device in step 2342. The wireless interface device 100 receives this data in step 2344 and passes it to the pen driver in step 2346.

The handwriting recognizer is illustrated in FIG. 112. Initially, pen data from the pen interrupt handler is analyzed in step 2348 to determine whether the pen data represents the first pen down event. If so, as mentioned above, a mouse left button down message is formulated in step 2350. If not, the pen data is converted into relative movement format in step 2352. In step 2354, a pen data packet is built by adding pressure, angle and move direction in the buffer. Default values may be used for the pressure and angle data. The system then checks in step 2356 whether there were any pen up events or a time out. If not, the system returns in step 2358. If so, the system calls a handwriting recognition engine in step 2360. Various handwriting recognition systems are suitable for use with the system. For example, the handwriter recognition system by CIC Products and Services, of Tokyo, Japan, is suitable. As mentioned above,

a handwriting recognition engine converts the pen data to characters for transmission to the servers 1708, 1710.

Obviously, many modifications and variations of the present invention are possible in light of the above teachings. Thus, it is to be understood that, within the scope of the appended claims, the invention may be practiced otherwise than as specifically described above.

What is claimed and desired to be secured by Letters Patent of the United States is:

1. A wireless interface device for use in a computer system which includes a plurality of remote host computers, each of said remote host computers having a CPU and a storage device for running and storing programs and an associated display for displaying images, each of said remote host computers including a radio interface, the wireless interface device including one or more electronically programmable memory devices, the system comprising:

a radio interface for wirelessly communicating with said host computer;

means for wirelessly interfacing said wireless interface device with said host computer using said radio interface, said wireless interfacing means including means for enabling said wireless interface device to take control of and access said host computer and execute programs from the storage device on said host computer by way of a radio link;

means for displaying at the wireless interface device whatever images can be displayed on said host computer; and

means for selectively requesting, from one of said plurality of remote host computers, updating of said one or more electronically programmable memory devices by said wireless interface device;

means for disabling power management functions on said wireless interface device during said updating;

means for enabling said electronically programmable memory devices in said wireless interface device to be updated with software from said remote host computer by way of said radio interface; and

means for resuming power management functions on said wireless interface device after said updating is complete.

2. The computer system as recited in claim 1, wherein said first enabling means includes a wireless LAN adapter.

3. The computer system as recited in claim 1, further including means for selectively enabling said electronically programmable memory devices to be upgraded.

4. The computer system as recited in claim 3, wherein said selectively enabling means is remote from said server.

5. The computer system as recited in claim 3, wherein each of said remote wireless interface devices includes means for selectively enabling its electronically programmable memory devices to be upgraded.

6. In a computer system which includes a plurality of remote host computers having a CPU, one or more memory storage devices for storing upgrade software, a display for displaying images and a wireless adapter, said computer system having one or more wireless interface devices adapted to communicate with said plurality of remote host computers, each wireless interface device comprising:

means for establishing radio communication with said remote host computer by way of said wireless adapter to enable said wireless interface device to take control of and access said host computer and execute programs from the storage device on said host computer;

means for displaying whatever images may be displayed on said host computer;

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means for receiving said upgrade software over said radio link;

one or more electronically programmable memory devices for storing program instructions;

means for selectively requesting, from one of said plurality of remote host computers, updating of said one or more electronically programmable memory devices by each wireless interface device;

means for disabling power management functions on said wireless interface device during said updating;

means for updating said memory devices by one of said plurality of remote host computers with said upgrade software received over said radio link; and

means for resuming power management functions on said wireless interface device after said updating is complete.

7. The system as recited in claim 6, further including means for determining the number of sectors in said upgrade software stored in said server.

8. The system as recited in claim 7, further including means for updating said memory devices in said wireless interface devices one sector at a time.

9. The system as recited in claim 6, further including means for automatically rebooting said wireless interface device when said memory device is completely updated.

10. The system as recited in claim 6, wherein said electronically programmable memory device to be updated within said wireless interface device is a flash read only memory (ROM).

11. The system as recited in claim 6, wherein said memory device to be updated within said wireless interface device is an electronically erasable programmable read only memory (EEPROM).

12. The system as recited in claim 6, wherein said updating means includes means for disabling interrupts to said wireless interface device while said memory device is being updated.

13. The system as recited in claim 6, wherein said updating means includes means for disabling power management functions prior to updating said memory device within said wireless interface device.

14. In a computer system which includes a plurality of remote host computers having a memory storage device for storing upgrade software and a CPU for storing and running programs and a display for displaying images, the remote host computer comprising:

means for enabling communication with one or more remote wireless interface devices;

means for enabling said wireless interface device to take control of and access said remote host computer;

means for enabling said wireless interface device to display whatever is being displayed on said remote host computer;

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means for enabling said wireless interface device to request updating from one of said plurality of remote host computers;

means for disabling power management functions on said wireless interface device during said updating;

means for transferring said upgrade software to one or more of said wireless interface devices which request updating of its memory device; and

means for resuming power management functions on said wireless interface device after said updating is complete.

15. A system, comprising:

a plurality of wireless interface devices, each having a memory for storing redetermined software;

a remote host computer for storing at least one computer file for updating said predetermined software;

means for establishing one or more wireless communication links between said remote host computer and said wireless interface devices;

means for enabling said wireless interface devices to take control of and access said remote host computer and execute programs stored on said remote host computer by way of the established one or more wireless communication links between said remote host computer and said wireless interface devices;

means for providing notice to said wireless interface devices, via said wireless communication channels, of the availability of said at least one computer file;

means for selectively down loading said at least one computer file from said remote host computer to at least one of said wireless interface devices by way of said wireless communication links in response to said notice;

means for disabling power management functions on said wireless interface device during said downloading;

means for selectively requesting, from one of said plurality of remote host computers, updating of said redetermined software in said memory by at least one of said plurality of wireless interface devices;

means for updating said redetermined software in accordance with said at least one computer file; and

means for resuming power management functions on said wireless interface device after said down loading is complete.

16. The system of claim 15, further comprising means for determining whether any errors occurred during the download of said at least one computer file.

17. The system of claim 15, wherein said means for selectively downloading includes an upgrade software button displayable by a graphical user interface (GUI) included in at least one of said wireless interface devices.

* * * * *

27/3,K/3 (Item 3 from file: 350)
DIALOG(R) File 350:Derwent WPIX
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015633425 **Image available**
WPI Acc No: 2003-695607/200366
XRPX Acc No: N03-555395

Remote upgraded appliance server system, has server with partitioned storage device having service partition with updated basic input/output system to re-boot server with upgrade unit

Patent Assignee: INTEL CORP (ITLC)

Inventor: MARTINEZ J A

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 6594757	B1	20030715	US 2000513304	A	20000225	200366 B

Priority Applications (No Type Date): US 2000513304 A 20000225

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 6594757	B1	8	G06F-009/24	

Remote upgraded appliance server system, has server with partitioned storage device having service partition with updated basic input/output system to re-boot server with upgrade unit

Abstract (Basic):

... The system has a server with a **programmable ROM** including a basic input/output system (BIOS). A storage device (202) **partitioned** into different **portions** has a service **partition** (204) storing updated BIOS to re-boot the server with an upgrade unit. A remote...

...to the server through a network connection initiates downloading of the upgraded BIOS to the **partition** .

... The service **partition** storing the downloaded BIOS **upgrade** provides an appropriate environment to run **remote applications** and diagnostics, and hence the **remote** interfacing computer can extract BIOS **upgrade** into the service **partition** and then signal the boot-up program to flash or upgrade the BIOS memory...

...Service **partition** (204...

...Title Terms: **PARTITION** ;

International Patent Class (Main): **G06F-009/24**

Manual Codes (EPI/S-X): **T01-F01B1** ...

... **T01-F05B2** ...

... **T01-N01D3**



US006594757B1

(12) **United States Patent**
Martinez

(10) Patent No.: **US 6,594,757 B1**
(45) Date of Patent: **Jul. 15, 2003**

(54) **REMOTE BIOS UPGRADE OF AN APPLIANCE SERVER BY REBOOTING FROM UPDATED BIOS THAT HAS BEEN DOWNLOADED INTO SERVICE PARTITION BEFORE FLASHING PROGRAMMABLE ROM**

(75) Inventor: **Jesus A. Martinez, Portland, OR (US)**

(73) Assignee: **Intel Corporation, Santa Clara, CA (US)**

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/513,304**

(22) Filed: **Feb. 25, 2000**

(51) Int. Cl.⁷ **G06F 9/24**

(52) U.S. Cl. **713/2; 709/221; 717/173**

(58) Field of Search **713/2, 100; 709/220; 717/173, 178**

(56) **References Cited**

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5,859,911 A * 1/1999 Angelo et al. 713/187
5,925,140 A * 7/1999 Hudson 714/52
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6,487,464 B1 * 11/2002 Martinez et al. 700/79

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OTHER PUBLICATIONS

IBM Technical Disclosure Bulletin, "Reliability Enhancement for Remote Booting Computers", vol. 40, pp. 57-60, Nov. 1997.*

* cited by examiner

Primary Examiner—Thomas Lee

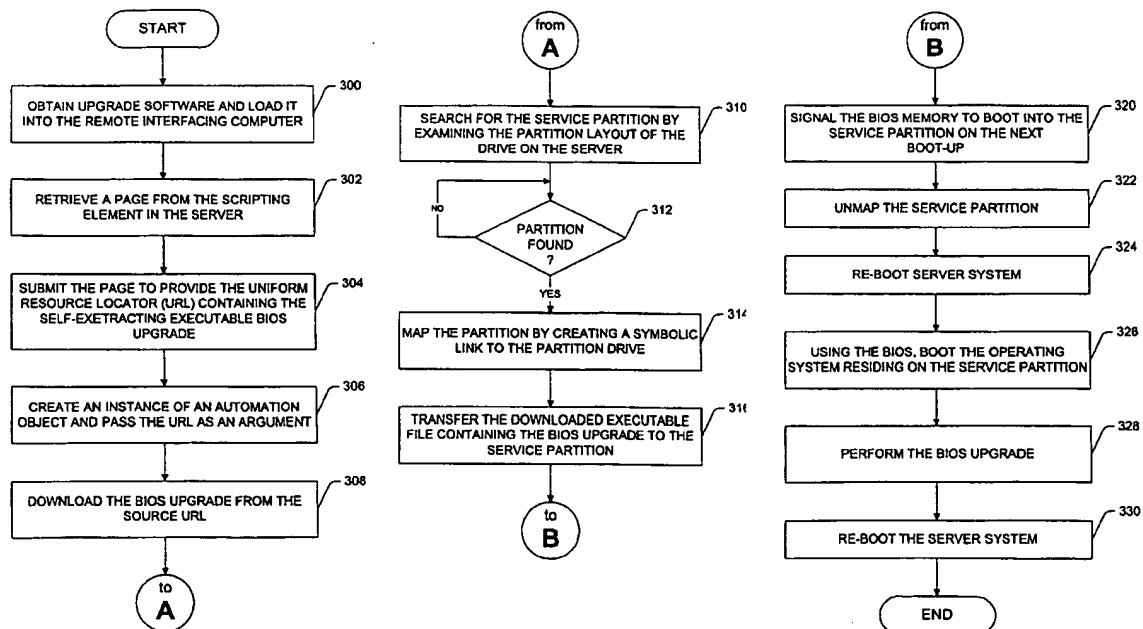
Assistant Examiner—Albert Wang

(74) Attorney, Agent, or Firm—Fish & Richardson P.C.

(57) **ABSTRACT**

An appliance server system having remote-configurable capability is disclosed. The server system includes a server, a remote interfacing computer, and a network connection. The server receives and extracts configuration upgrade information. The remote interfacing computer formulates and provides the configuration upgrade information. The network connection couples the server to the remote interfacing computer.

12 Claims, 5 Drawing Sheets



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embodiment, the BIOS upgrade can be a self-extracting executable file.

At 306, the scripting element creates an instance of an automation object, and passes the Uniform Resource Locator as an argument to the object. When the automation object receives the Uniform Resource Locator, it downloads the BIOS upgrade from the source Uniform Resource Locator at 308. The automation object then searches for the Service Partition by examining the partition layout of the storage device/drive on the appliance server at 310. If the partition is found at 312, the object maps the partition by creating a symbolic link to the partition drive at 314. This causes the file system driver to recognize the Service Partition. Thus, the Service Partition can be accessed like any other drive. Otherwise, if the partition is not found, the object continues its search.

Once the Service Partition is mapped, the object transfers the downloaded executable file containing the BIOS upgrade to the Service Partition at 316. At 320, the object signals the BIOS memory to boot into the Service Partition on the next boot-up. The object then unmaps the Service Partition at 322, and causes the server system to re-boot at 324.

On the next boot-up of the server system, the operating system residing on the Service Partition is booted up using the BIOS at 326. In a particular embodiment, a boot-up batch file, such as an autoexec.bat file in the Service Partition invokes memory "flash" to upgrade the BIOS at 328. When the memory "flash" is done, server system re-boots at 330. The server system boots into the new BIOS and the normal operating system.

The advantages of this server system 200 include remote administration capability using simplified administrative tools. The capability allows the server to be headless since it does not need dedicated disk drive for the BIOS functions. This provides time savings for the system administrators and database users, who are implementing the use of the system. Also, the reduction in complexity of the server system can increase the system's reliability and availability. The reduction in complexity of the system can include elimination of unnecessary devices, intricate installation steps, and complicated user interfaces. Further, the remote-interface-capable server system 200 can provide point solutions to direct network needs in the absence of Information Technology (IT) expertise. With the present server system 200, services can be relied upon with minimal downtime and limited user intervention.

The above embodiments are for illustrative purposes. Other embodiments and variations are possible. For example, the scripting element 206 can use Common Gateway Interface (CGI) and Perl instead of the Active Server Page (ASP). The CGI can introduce some interaction to their

All these are intended to be encompassed by the following claims.

What is claimed is:

1. An appliance server system comprising:
 - a server including
 - a programmable Read Only Memory (ROM) including a Basic Input/Output System (BIOS);
 - a storage device partitioned into a plurality of different partitions, said plurality of different partitions including a service partition to store an updated BIOS;
 - an upgrade element operative to cause the server to re-boot off of the updated BIOS in the service partition,

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write the updated BIOS to the programmable ROM, and then re-boot from the updated BIOS on the programmable ROM;

a network connection coupled to the server; and

a remote administrator coupled to the server via said network connection operative to initiate a download of the upgraded BIOS to the partition.

2. The system of claim 1, wherein said server is a "headless" server that functions without a terminal display or any physical input devices such as keyboard or mouse.

3. The system of claim 1, wherein said Basic Input/Output System (BIOS) upgrade information is stored at a site addressed by a Uniform Resource Locator (URL).

4. The system of claim 1, wherein said remote administrator includes a monitor and a keyboard.

5. A method comprising:

obtaining remote upgraded Basic Input/Output System (BIOS) information;

transferring said upgraded BIOS information into a designated partition of a storage device at a headless client; re-booting the headless client using the upgraded BIOS information in the designated partition;

upgrading BIOS information in a programmable Read Only Memory (ROM) in said headless client based on said upgraded BIOS information; and

re-booting the headless client using the upgraded BIOS information in the programmable ROM.

6. The method of claim 5, further comprising: retrieving a page from a scripting element; and submitting the page to provide a location where the upgraded BIOS is stored.

7. The method of claim 6, wherein said location is indicated by a Uniform Resource Locator (URL).

8. The method of claim 6, further comprising: creating an instance of an automation object; and passing the upgrade information location as an argument to said automation object.

9. The method of claim 8, further comprising: downloading the configuration upgrade information from the upgrade information location.

10. The method of claim 5, wherein said upgrading BIOS information in the programmable ROM includes: invoking memory flash.

11. An apparatus comprising a computer-readable storage medium having executable instructions that enable the computer to:

obtain remote upgraded Basic Input/Output System (BIOS) information;

transfer said upgraded BIOS information into a designated partition of a storage device at a headless client; re-boot the headless client using the upgraded BIOS information in the designated partition;

upgrade BIOS information in a programmable Read Only Memory (ROM) based on said upgraded BIOS information; and

re-booting the headless client using the upgraded BIOS information in the programmable ROM.

12. The apparatus of claim 11, wherein the instructions for upgrading the BIOS information includes instructions that enable the computer to:

invoke memory flash.

* * * * *

27/3,K/7 (Item 7 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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010136934 **Image available**
WPI Acc No: 1995-038185/199506
Related WPI Acc No: 2002-279320; 2002-698099; 2003-415891
XRPX Acc No: N95-030247

Modem with firmware upgrade feature using flash memory - has separate control programs for testing and remote re-programming of interface via telephone interface and serial port to computer

Patent Assignee: MULTI-TECH SYSTEMS INC (MULT-N)
Inventor: JOHNSON G; JOHNSON R; WEINZIERL D A; JOHNSON R D
Number of Countries: 020 Number of Patents: 013
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 632629	A1	19950104	EP 94304741	A	19940629	199506 B
CA 2126926	A	19950103	CA 2126926	A	19940628	199514
JP 7147611	A	19950606	JP 94152009	A	19940704	199531
US 5644594	A	19970701	US 9387164	A	19930702	199732
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CA 2126926	C	19990525	CA 2126926	A	19940628	199939
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EP 632629	B1	20040922	EP 94304741	A	19940629	200462
DE 69434017	E	20041028	DE 94634017	A	19940629	200471
			EP 94304741	A	19940629	
CA 2368134	C	20050607	CA 2261214	A	19940628	200538
			CA 2368134	A	19940628	

Priority Applications (No Type Date): US 9387164 A 19930702; US 95548005 A 19951025

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 632629	A1	E	36	H04L-029/06	
Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE					
CA 2126926	A			H04M-011/06	
JP 7147611	A		26	H04M-011/00	
US 5644594	A		30	H04B-001/38	Div ex application US 9387164
CA 2126926	C	E		H04M-011/06	
CA 2261214	A1	E		H04M-011/06	Div ex application CA 2126926
US 6031867	A			H04B-001/38	
CA 2368134	A1	E		G06F-015/177	Div ex application CA 2261214
CA 2261214	C	E		H04M-011/06	Div ex application CA 2126926
JP 2002247226	A		24	H04M-011/00	Div ex application JP 94152009
EP 632629	B1	E		H04L-029/06	
Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE					
DE 69434017	E			H04L-029/06	Based on patent EP 632629
CA 2368134	C	E		G06F-015/177	Div ex application CA 2261214

Modem with firmware upgrade feature using flash memory -

...Abstract (Basic): module to a telephone line. A processor (313) executes a program stored in a flash **PROM** (317). An interface (314,315) combining an SIO and an RS232 serial interface provides local...

...ADVANTAGE - Small. Lightweight. Portable. Powered by battery. **Remote upgraded** for bug fixes, enhancements and new **software** .

International Patent Class (Main): **G06F-015/177** ...

International Patent Class (Additional): **G06F-009/445** ...

... **G06F-011/00** ...

... **G06F-013/00** ...

... **G06F-013/10** ...

... **G06F-013/14**

Manual Codes (EPI/S-X): **T01-C03A** ...

... **T01-H05B2**



US006031867A

United States Patent [19]
Johnson et al.

[11] **Patent Number:** **6,031,867**
 [45] **Date of Patent:** **Feb. 29, 2000**

[54] **MODEM WITH FIRMWARE UPGRADE
 FEATURE**

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 Johnson, Maplewood; David A.
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[73] **Assignee:** **Multi-Tech Systems, Inc., Mounds
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[21] **Appl. No.:** **08/087,164**

[22] **Filed:** **Jul. 2, 1993**

[51] **Int. Cl.⁷** **H04B 1/38; G06F 13/14**

[52] **U.S. Cl.** **375/222; 709/302**

[58] **Field of Search** **375/8, 377, 220;
 379/93; 709/200, 216, 217, 230, 246, 300,
 302**

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Primary Examiner—Madeleine Nguyen

Attorney, Agent, or Firm—Schwegman, Lundberg,
 Woessner & Kluth, P.A.

[57] **ABSTRACT**

Updated operating code and parameters can be reprogrammed into a modem system with no disassembly of the modem hardware. The modem system includes an in-circuit reprogrammable memory chip in which operating code and parameters are stored. Two control programs control the reprogramming of updated operating code. One of the control programs is designed for manufacturing and testing purposes. The other control program allows remote reprogramming of updated operating code or parameters from a remote location such as a customer site. The modem system is portable, obtaining power from a standard 9 volt battery. Therefor, various power saving features are also incorporated into the modem system.

8 Claims, 21 Drawing Sheets

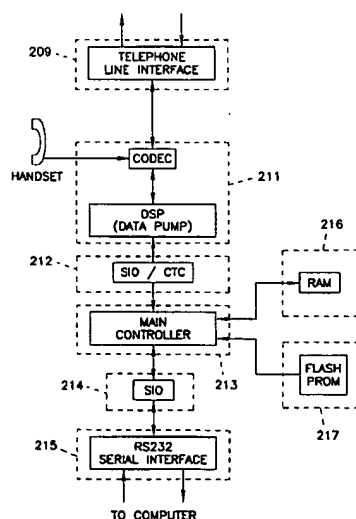


TABLE 3-continued

Packet Field	Field Length
Program Data	x bytes
XOR'd checksum	1 byte

After the packet is built, the host PC sends the command ATFLP to the modem, the command for program a packet. Upon receipt of the ATFLP command, the modem responds with a 'G'. The host PC then transmits the data packet pointed to by the RAM buffer pointer.

After the packet is received by the modem, the modem generates its own checksum based on the data received and compares it to the checksum sent by the host PC. If they are equivalent, the modem responds with 'OK', and the received code is programmed into the flash PROM address pointed to by the Address High, Middle, and Low bytes. Otherwise the modem responds with an error.

The host PC will run through the programming loop, searching through the RAM buffer, creating packets and sending packets to the modem until the programming is complete or until 5 consecutive errors occur.

After the host PC has sent all the packets, as determined by the DONE PROGRAMMING query, the host PC sends an ATFLEND command to signal that programming is completed. After the file has been programmed, an exit routine, shown in FIG. 8A is run in which timers are shut down and the state of the screen is restored. The user is informed that the program is completed or was terminated due to error. The program then jumps to the normal modem code.

Detailed Description of the Boot Control Program

FIGS. 9A and 9B show a flow diagram of the boot control program. FIGS. 9A and 9B show the same programming procedure as described above with respect to FIGS. 8A-8C, except that FIGS. 8A-8C were described from the perspective of the host PC and FIGS. 9A and 9B are described from the perspective of the modem. The program begins with power up or AT*FS. The serial port between modem and host PC is initialized for 19200 baud. At this point the modem also copies the program code into RAM. The boot control program is run out of RAM while the flash PROM is reprogrammed. This is because certain bits in flash PROM U7 are toggled during reprogramming and therefore the boot control program must be copied to RAM to avoid corruption of the boot control code.

Next, the handshaking protocol described above with respect to FIG. 8C is performed. The modem initializes a counter for 30 milliseconds. If the modem receives an 'M' from the host PC, the modem responds with a 'U'. If no 'M' is received, the counter is decremented. The loop will timeout after 30 ms if no 'M' is received. The number of times through the loop is dependent on the crystal speed of the modem, but is equivalent to 30 milliseconds.

When the 'M' is received and the 'U' response is sent, another counter is initialized to 300 milliseconds. If a 'D' is received from the host PC within the 300 ms timeout, the modem responds with a 'J', 'K' or an 'M', depending of the baud rate at which the modem can run.

The host PC then sends either 'I', 'J', 'K', 'L' or 'M', and both the host PC and the modem configure their baud rates according to the negotiated speed.

The AT commands ATFLP, ATFLEND or ATIx can now be received by the modem. Flow diagrams showing the

programming procedures on receipt of these commands are shown in FIGS. 9B-9D.

FIG. 9B shows the control flow upon receipt of the ATFLP command. The modem first responds with a 'G' to indicate that the ATFLP command was received. Next, the packet length bytes and programming address bytes are received from the host PC. A counter is initialized to the length of a packet, and the checksum is initialized to 0.

The modem next runs through a loop, getting each data byte and calculating a new checksum by XOR'ing the checksum from the previous iteration through the loop with the data received. The modem continues through the loop, decrementing the counter each iteration until the count equals 0, indicating that the entire packet was received.

Next, the modem receives the checksum data byte which was generated by the host PC. If the checksum data byte generated by the host PC is equal to the checksum generated by the modem, the data bytes are programmed into the programming address sent with the packet into the flash PROM and an 'OK' response is sent to the host PC. If the checksums are not equal, an error message is sent to the host PC.

FIG. 9C shows the flow diagram for the ATFLEND command. As discussed above, the ATFLEND command occurs when programming of the flash PROM is completed. If the command ATFLEND is received, the serial port is disabled and a jump to the normal modem code is performed.

FIG. 9D shows other commands ATIx, where x=0, 1, 2 or 3. ATi0 commands the modem to respond with a product identification code. ATi1 commands the modem to respond with a boot version number, which is the version of the boot control program installed in the modem. The boot version number is important because different versions may require different packet lengths.

ATi2 is for identification of a basic modem or hardware platform. MT1432xx indicates a derivative of the basic MT1432 platform, for example. These could become more specific to facilitate a more intelligent host interface. ATi3 can be used to indicate country types, special defaults, or for future expansion of making a smarter PC host interface.

We claim:

1. A system for updating operating code in a reprogrammable modem the updated orating code being downloaded from a remote computer via telephone lines, comprising:

a field-upgradable modem having;

communications interface means connected for communicating with a local host computer and operable for transferring data between the local host computer and the modem telephone line interface means for connection to the telephone line;

control means connected to the telephone line interface means and the communications interface means for executing exiting operating code to control the modem;

memory means connected to the control means for storing the existing operating code and for storing a boot program;

the control means further operable for executing the boot program to receive updated operating code packets from the local host computer, for checking the validity of the packets and replacing the existing operating code in the memory means with the updated operating code received by the communications interface means from the local host computer;

the local host computer executing software to communicate with the remote computer through the modem

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connected to the telephone line and operable for initiating a telephone call to the remote computer in response to the commands by a local user of the local host computer and for controlling downloading of the updated operating code from the remote computer to the local host computer; and

the local host computer further executing software to communicate with the modem through the communications interface, to place the updated operating code into updated operating code packets and to control transfer of said updated operating code packets from the local host computer to the modem over the communications interface.

2. The system of claim 1 wherein the memory means comprises an Electrically Erasable Programmable Read Only Memory.

3. The system of claim 1 further including:

- power saving means connected to the control means for conserving power when the modem is not in use, the power saving means comprising:
 - external oscillator means for providing an external clock signal to the control means during use of the modem by the local host computer;
 - low frequency oscillator means for providing a low power, low frequency clock signal to the control mean when the modem is not in use;
 - the control means further for operating in a first power mode when the modem is not in use;
 - the control means further for operating in a second power mode when the modem is in use.

4. The system according to claim 1 wherein the control means is further operable for executing the boot program for programming the updated operating code into the memory means by performing the steps of:

- (a) reading a packet of the updated operating code having a first format and transferred from the local host computer;
- (b) converting the packet of the updated operating code from a first format to a second, binary format;
- (c) storing the binary format of the updated operating code in a memory means;
- (d) reading a next packet of the updated operating code transferred from the local host computer; and
- (e) repeating steps (b)–(d) until all of the updated operating code is stored in the memory means.

5. The system according to claim 1 further including:

- an external oscillator adapted to output an external clock signal;
- the modem further including a data pump circuit connected to the telephone line interface means and adapted to control modulation on the telephone line, the data pump circuit requiring a clock signal when not in use;
- a low frequency oscillator connected to the data pump circuit adapted to output a low frequency clock signal and adapted to operate using low power; and
- sleep means for disabling the external oscillator when the communications module is not in use, and further for enabling the low frequency oscillator to provide the required clock signal to the data pump means.

6. A modem which handles communication between a remote computer connected to the modem over a telephone line, and a local computer connected to the modem over a communications interface, the modem operating under control of operating code to which periodic updates are made, comprising:

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storage means in the modem for storing the existing operating code, for storing a boot program and for receiving and storing updated operating code;

data pump means in the modem for receiving the updated operating code from the remote computer over the telephone line;

control means connected to the storage means and the data pump means for programming the updated operating code into the storage means, said control means including:

- receive means for receiving the updated operating code from the remote computer and passing it to the local computer;
- protocol means for transferring the updated operating code from the local computer to the modem over the communications interface according to a predetermined communications protocol and using a packet format;
- check means for verifying that the updated operating code was accurately transferred and
- conversion means for converting the packet of the updated operating code from a first format to a second, binary format.

7. A method of upgrading the operating code which controls a modem, comprising the step of:

- (a) storing in a remote computer updated operating code;
- (b) transferring the updated operating code in a first format from the remote computer to a local computer;
- (c) storing the updated operating code in a first memory buffer in the local computer;
- (d) reading a first portion of the updated operating code;
- (e) creating a packet having a packet identifier, a length indicator, a programming address and the read portion of the updated operating code;
- (f) transmitting the packet to the modem;
- (g) storing the packet of the updated operating code into the modem at the address specified in the programming address;
- (h) reading a next portion of the updated operating code;
- (i) repeating steps (e)–(h) until all of the updated operating code is stored into the modem.

8. A reprogrammable modem, comprising:

- communications interface means connected for communicating with a host computer and operable for transferring data between the host computer and the communications interface;
- a data pump circuit including telephone line interface means for connection to a telephone line the data pump circuit requiring a clock signal when not in use;
- control means connected to the communications interface means and the data pump circuit for executing operating code to control said modem;
- memory means for storing the operating code; and
- the control means executing software to communicate with a remote computer through the telephone line and operable for initiating a telephone call to the remote computer in response to commands received by the control means by a local user of the host computer and for controlling downloading of the updated operating code from the remote computer to the host computer;
- the control means further executing software to communicate with the host computer through the communications interface and to control transfer of said updated

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operating code from the local computer to the modem
over the communications interface means;
an external oscillator connected to the data pump circuit
and the control means and adapted to output an external
clock signal;
low frequency oscillator connected to the data pump
circuit and the control means and adapted to output a

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low frequency clock signal and adapted to operate
using low power; and
sleep means for disabling the external oscillator when the
modem is not in use, and further for enabling the low
frequency oscillator to provide the required clock sig-
nal to the data pump circuit.

* * * * *



US005644594A

United States Patent [19]
Johnson et al.

[11] **Patent Number:** **5,644,594**
 [45] **Date of Patent:** **Jul. 1, 1997**

[54] **POWER-CONSERVING MODEM**

[75] **Inventors:** **Greg Johnson, Fridley; Richard David Johnson, Maplewood; David A. Weinzierl, Mounds View, all of Minn.**

[73] **Assignee:** **Multi-Tech Systems, Inc., Mounds View, Minn.**

[21] **Appl. No.:** **548,005**

[22] **Filed:** **Oct. 25, 1995**

Related U.S. Application Data

[62] **Division of Ser. No. 87,164, Jul. 2, 1993.**

[51] **Int. Cl.⁶** **H04B 1/38; H04L 5/16**

[52] **U.S. Cl.** **375/222; 455/343; 364/707**

[58] **Field of Search** **375/219, 220, 375/221, 222, 223; 455/73, 85, 86, 343, 38.3; 364/707; 395/750; 379/98**

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Primary Examiner—Tessfaldet Bocure

Assistant Examiner—Bryan Webster

Attorney, Agent, or Firm—Schwegman, Lundberg, Woessner & Kluth, P.A.

[57]

ABSTRACT

Updated operating code and parameters can be reprogrammed into a modem system with no disassembly of the modem hardware. The modem system includes an in-circuit reprogrammable memory chip in which operating code and parameters are stored. Two control programs control the reprogramming of updated operating code. One of the control programs is designed for manufacturing and testing purposes. The other control program allows remote reprogramming of updated operating code or parameters from a remote location such as a customer site. The modem system is portable, obtaining power from a standard 9 volt battery. Therefor, various power saving features are also incorporated into the modem system.

3 Claims, 21 Drawing Sheets

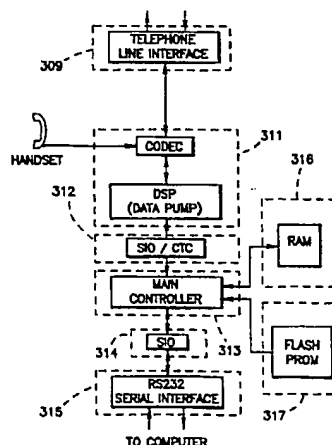


TABLE 3-continued

Packet Field	Field Length
Program Data	x bytes
XOR'd checksum	1 byte

After the packet is built, the host PC sends the command ATFLP to the modem, the command for program a packet. Upon receipt of the ATFLP command, the modem responds with a 'G'. The host PC then transmits the data packet pointed to by the RAM buffer pointer.

After the packet is received by the modem, the modem generates its own checksum based on the data received and compares it to the checksum sent by the host PC. If they are equivalent, the modem responds with 'OK', and the received code is programmed into the flash PROM address pointed to by the Address High, Middle, and Low bytes. Otherwise the modem responds with an error.

The host PC will run through the programming loop, searching through the RAM buffer, creating packets and sending packets to the modem until the programming is complete or until 5 consecutive errors occur.

After the host PC has sent all the packets, as determined by the DONE PROGRAMMING query, the host PC sends an ATFLEND command to signal that programming is completed. After the file has been programmed, an exit routine, shown in FIG. 8A is run in which timers are shut down and the state of the screen is restored. The user is informed that the program is completed or was terminated due to error. The program then jumps to the normal modem code.

Detailed Description of the Boot-Control Program

FIGS. 9A and 9B show a flow diagram of the boot control program. FIGS. 9A and 9B show the same programming procedure as described above with respect to FIGS. 8A-8C, except that FIGS. 8A-8C were described from the perspective of the host PC and FIG. 9A and 9B are described from the perspective of the modem. The program begins with power up or AT*FS. The serial port between modem and host PC is initialized for 19200 baud. At this point the modem also copies the program code into RAM. The boot control program is run out of RAM while the flash PROM is reprogrammed. This is because certain bits in flash PROM U7 are toggled during reprogramming and therefore the boot control program must be copied to RAM to avoid corruption of the boot control code.

Next, the handshaking protocol described above with respect to FIG. 8C is performed. The modem initializes a counter for 30 milliseconds. If the modem receives an 'M' from the host PC, the modem responds with a 'U'. If no 'M' is received, the counter is decremented. The loop will timeout after 30 ms if no 'M' is received. The number of times through the loop is dependent on the crystal speed of the modem, but is equivalent to 30 milliseconds.

When the 'M' is received and the 'U' response is sent, another counter is initialized to 300 milliseconds. If a 'D' is received from the host PC within the 300 ms timeout, the modem responds with a 'J', 'K' or an 'M', depending of the baud rate at which the modem can run.

The host PC then sends either 'I', 'J', 'K', 'L' or M, and both the host PC and the modem configure their baud rates according to the negotiated speed.

The AT commands ATFLP, ATFLEND or ATIx can now be received by the modem. Flow diagrams showing the

programming procedures on receipt of these commands are shown in FIGS. 9B-9D.

FIG. 9B shows the control flow upon receipt of the ATFLP command. The modem first responds with a 'G' to indicate that the ATFLP command was received. Next, the packet length bytes and programming address bytes are received from the host PC. A counter is initialized to the length of a packet, and the checksum is initialized to 0.

The modem next runs through a loop, getting each data byte and calculating a new checksum by XOR'ing the checksum from the previous iteration through the loop with the data received. The modem continues through the loop, decrementing the counter each iteration until the count equals 0, indicating that the entire packet was received.

Next, the modem receives the checksum data byte which was generated by the host PC. If the checksum data byte generated by the host PC is equal to the checksum generated by the modem, the data bytes are programmed into the programming address sent with the packet into the flash PROM and an 'OK' response is sent to the host PC. If the checksums are not equal, an error message is sent to the host PC.

FIG. 9C shows the flow diagram for the ATFLEND command. As discussed above, the ATFLEND command occurs when programming of the flash PROM is completed. If the command ATFLEND is received, the serial port is disabled and a jump to the normal modem code is performed.

FIG. 9D shows other commands ATIx, where x=0, 1, 2 or 3. ATi0 commands the modem to respond with a product identification code. ATi1 commands the modem to respond with a boot version number, which is the version of the boot control program installed in the modem. The boot version number is important because different versions may require different packet lengths.

ATi2 is for identification of a basic modem or hardware platform. MT1432xx indicates a derivative of the basic MT1432 platform, for example. These could become more specific to facilitate a more intelligent host interface. ATi3 can be used to indicate country types, special defaults, or for future expansion of making a smarter PC host interface.

We claim:

1. A power-conserving modem, comprising:

communications interface means connected for communicating with a local computer and operable for transferring data and commands between the local computer and the modem;

telephone line interface means including a data pump circuit for connection to a telephone line;

control means connected to the telephone line interface means and the communications interface means for executing operating code to control the modem;

memory means connected to the control means for storing the operating code;

power saving means connected to the control means for conserving power when the modem is not in use, the power saving means comprising:

first oscillator means for providing a first clock signal to the control means during use of the modem;

second oscillator means for providing a second clock signal having a frequency which is switchable between a first frequency and a second frequency to the data pump circuit;

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the modem further for operating in a first power consumption mode when the first clock signal is provided to the control means and the second clock is connected to the data pump circuit and switched to the first frequency;

the modem further for operating in a second power consumption mode when the first clock signal is not provided to the control means and the second clock is connected to the data pump circuit and switched to the second frequency; and

wake up means connected to the control means and the telephone line interface means and operable for causing the control means to switch from a second power consumption mode to a first power consumption

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tion mode when a ring signal is detected on the telephone line.

2. The power-conserving modem of claim 1, further comprising a watch dog timer connected to the control means and operable for generating an interrupt at periodic intervals to cause the control means to switch from the second power consumption mode to the first power consumption mode.

3. The power-conserving modem of claim 2 in which the watch dog time further enables the control means to keep track of the time for which the modem cannot call a blacklist of forbidden phone numbers.

* * * * *

27/3,K/8 (Item 8 from file: 347)
DIALOG(R)File 347:JAPIO
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04167003 **Image available**
REMOTE DOWN LOADING SYSTEM FOR SOFTWARE

PUB. NO.: 05-158703 [JP 5158703 A]
PUBLISHED: June 25, 1993 (19930625)
INVENTOR(s): TANABE JUNJI
APPLICANT(s): NEC CORP [000423] (A Japanese Company or Corporation), JP
(Japan)
APPL. NO.: 03-341769 [JP 91341769]
FILED: December 02, 1991 (19911202)
JOURNAL: Section: P, Section No. 1626, Vol. 17, No. 557, Pg. 161,
October 07, 1993 (19931007)

INTL CLASS: G06F-009/445 ; G06F-013/00

ABSTRACT

PURPOSE: To perform a **remote** down loading operation of **software** in an on-line state without stopping the device functions when the **software** of plural devices forming a network are **updated** .

...
...CONSTITUTION: A network forming device 20 contains a working program memory **EEPROM** 103 and a stand-by **EEPROM** 104 so that a broadcast type communication and a 1-1 type communication are available...

... in the 1-1 communication method. Furthermore a state set before the switching to the **EEPROM** 103 is reset in an abnormal state with the rise processing of a **ROM** 107. Thus the communicating function of the network 2 is assured.

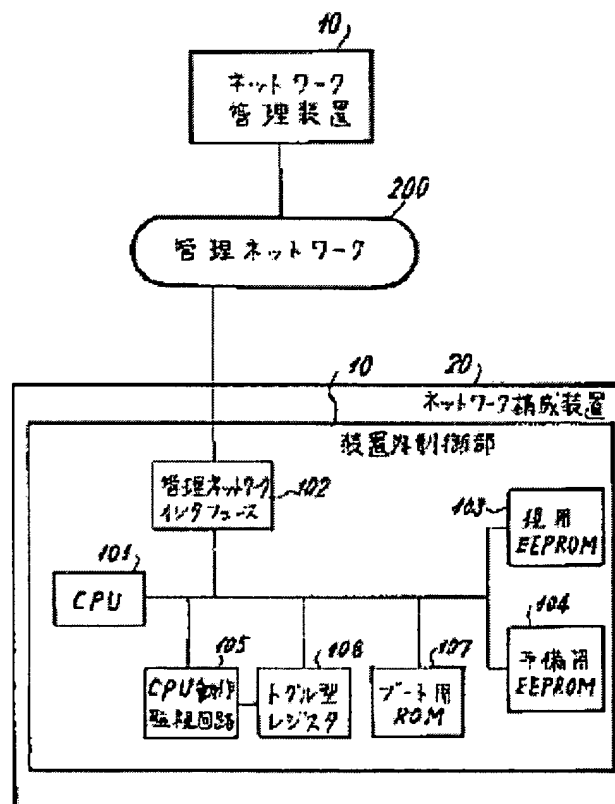
REMOTE DOWN LOADING SYSTEM FOR SOFTWARE

Patent number: JP5158703
Publication date: 1993-06-25
Inventor: TANABE JUNJI
Applicant: NIPPON ELECTRIC CO
Classification:
 - international: (IPC1-7): G06F9/445; G06F13/00
 - european:
Application number: JP19910341769 19911202
Priority number(s): JP19910341769 19911202

Report a data error here

Abstract of JP5158703

PURPOSE: To perform a remote down loading operation of software in an on-line state without stopping the device functions when the software of plural devices forming a network are updated. **CONSTITUTION:** A network forming device 20 contains a working program memory EEPROM 103 and a stand-by EEPROM 104 so that a broadcast type communication and a 1-1 type communication are available in a control network 200, and carries out the simultaneous software down loading operations in the broadcast communication from a network controller 10 to plural devices and a confirming operation in the 1-1 communication method. Furthermore a state set before the switching to the EEPROM 103 is reset in an abnormal state with the rise processing of a ROM 107. Thus the communicating function of the network 2 is assured.



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Set	Items	Description
S1	525422	REMOTE? OR (NON OR "NOT") () PHYSICAL? () PRESENT OR (NON OR "NOT") () (PRESENT OR ON(2W) PREMISE) OR OFFSITE? OR OFF () SITE
S2	1027681	NONLOCAL? OR "NOT" () LOCAL? OR WIRELESS? OR WIRE () LESS? OR - CELLULAR? OR BLACKBERRY? OR BLUETOOTH? OR RADIO () LINK?
S3	7096599	SOFTWARE? OR APPLICATION? OR SOFT () WARE? OR APPLET? ? OR J-AVA
S4	587904	SUBROUTIN? OR SUBPROGRAM? OR COMPUTER? (2N) (CODE? OR UTILIT? OR SCRIPT? OR PROGRAM?)
S5	11186243	UPDAT? OR CHANGE? OR CHANGING? OR ALTER? OR MODIF? OR TRANSFORM? OR CONVERT? OR CONVERSION?
S6	1504535	UPGRAD? OR REPLAC? OR SUBSTITUT? OR UP () (DATE? OR DATING? - OR GRADE? OR GRADING?)
S7	1180318	EDIT? OR (WRITE? OR WRITING? OR WRITTEN OR COPY? OR COPIE? -) () OVER OR REFRESH?
S8	7202996	IMPLANT? OR INSERT? OR IMPORT? OR EMBED? OR TRANSPLANT? OR TRANSFER? OR RELOCAT?
S9	951751	MAPPING? OR REMAP? OR MAPPED OR MAPS
S10	5581647	PARTITION? OR PART? ? OR PARTIAL? OR SEGMENT? OR DIVISION?
S11	1401781	PARCEL? OR PIECE? OR CHUNK? OR FRACTION? OR SLICE?
S12	2312713	SECTION? OR SECTOR? OR PORTION? OR APPORTION?
S13	10608	READ () ONLY? OR READONLY?
S14	185291	ROM? ? OR CDROM? OR STATIC? () ROM? ? OR STATICROM? OR FLASH- () MEMOR?
S15	8641	READ () WRITE? OR READWRITE?
S16	17576	READ () ERAS? OR READ () UPDAT? OR EPROM? OR EEPROM? OR PROM? ? OR PROGRAM? () ROM? ? OR REPROGRAM? () ROM?
S17	13259	S1:S2(10N)S5:S9(10N)S3:S4
S18	13	S17 AND S13:S14 AND S15:S16
S19	1	S18 AND S10:S12
S20	52	S1:S2 AND S5:S9 AND S3:S4 AND S13:S14 AND S15:S16
S21	7	S20 AND S10:S12
S22	52	S18:S21
S23	42	S22 AND PY<2002
S24	38	RD (unique items)
File	2:INSPEC	1898-2005/Dec W2 (c) 2005 Institution of Electrical Engineers
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File	99:Wilson	Appl. Sci & Tech Abs 1983-2005/Oct (c) 2005 The HW Wilson Co.
File	111:TGG	Natl.Newspaper Index(SM) 1979-2005/Dec 20 (c) 2005 The Gale Group
File	144:Pascal	1973-2005/Dec W2 (c) 2005 INIST/CNRS
File	239:Mathsci	1940-2005/Jan (c) 2005 American Mathematical Society
File	256:TecInfoSource	82-2005/Feb (c) 2005 Info.Sources Inc

24/3,K/4 (Item 4 from file: 2)

DIALOG(R)File 2:INSPEC

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06089224 INSPEC Abstract Number: C9512-5140-001

Title: Computer system reconfiguration in service

Author(s): Bryant, J.

Journal: Elektronik Industrie vol.26, no.4 p.92, 94-5

Publication Date: April 1995 Country of Publication: West Germany

CODEN: EKIDAT ISSN: 0374-3144

Language: German

Subfile: C

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Abstract: The author describes the use of **flash - memory** to allow the **software** in electronic systems to be **remotely changed**, without the need for **replacing PROM** chips. The use of the ATMEL company's series AT89 microcomputers is illustrated, which are...

... used either for normal processor I/O or for programming. It is stated that existing **PROM** programmers can be employed. Advantages of using on-chip memory are stated to include the...

Descriptors: **EPROM** ;

...Identifiers: **remote software change** ; ...

... **flash - memory** ; ...

... **PROM** programmers
1995

24/3,K/15 (Item 15 from file: 2)
DIALOG(R)File 2:INSPEC
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02723855 INSPEC Abstract Number: C81026334

Title: EE- PROM goes to work updating remote software
Author(s): Battat, R.; Rizzo, J.F.
Author Affiliation: Intel Corp., Santa Clara, CA, USA
Journal: Electronics vol.54, no.10 p.155-8
Publication Date: 19 May 1981 **Country of Publication:** USA
CODEN: ELECAD **ISSN:** 0883-4989
Language: English
Subfile: C

Title: EE- PROM goes to work updating remote software

Abstract: Microprocessor system **software** needs frequent revision, which is inconvenient, difficult, and costly. But because it combines the nonvolatility of **ROM** and the flexibility of random-access memory, and electrically erasable programmable **read - only** memory at the microprocessor site allows **remote software changes** to be made through a telephone-line data link, eliminating field service expenses. As technology...

... to determine-more than component costs-the cost of microprocessor systems. Intel's 2816 EE- **PROM** not only solves the service problems, but it also makes existing designs more functional since they need only be **updated**, not **replaced**. The author considers how.

Identifiers: remote software ; ...

... remote software changes ; ...

...EE- PROM ; ...

... software updating
1981